FIVE STAR CHEMICALS

Safety First!

Hazardous Charts

Health Hazard

- Carcinogen
- Mutagenicity
- Reproductive Toxicity
- Respiratory Sensitizer
- Target Organ Toxicity
- Aspiration Toxicity

Exclamation Mark

- Irritant (skin and eye)
- Skin Sensitizer
- Acute Toxicity (harmful)
- Narcotic Effects
- Respiratory Tract Irritant
- Hazardous to Ozone Layer (Non-Mandatory)

Flame Over Circle

- Oxidizers

Skull and Crossbones

- Acute Toxicity (fatal or toxic)

Corrosion

- Skin Corrosion/ Burns
- Eye Damage
- Corrosive to Metals

Flame

- Flammables
- Pyrophorics
- Self-Heating
- Emits Flammable Gas
- Self-Reactives
- Organic Peroxides

HAZARDOUS MATERIALS CLASSIFICATION

Safety First!

Personal Protective Equipment (PPE)

Proper PPE: Safety Glasses with Side Sheilds, Arms and Legs covered with clothes, Rubber Boots, Chemical Resistant Gloves, Mask and Respirator

*Check you Safety Data Sheets

Safety Data Sheet SDS

Five Star Chemicals & Supply, Inc.

Star San
Safety Data Sheet
according to the Hazardous Products Regulation (February 11, 2015)
Issue date: 10-23-2020 Revision date: 11-17-2020 Version: 1.1

SECTION 1: Identification

1.1. Product identifier

Product form : Mixture
Product name : Star San

1.2. Recommended use and restrictions on use

Recommended use : Cleaner

1.3. Supplier

Manufacturer
Five Star Chemicals & Supply Inc
6870 W. 52nd Ave
Arvada, CO 80002
T (303)287-0186

Distributor

1.4. Emergency telephone number

Emergency number : 800-535-5035 (Infotrac)

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

Classification (GHS CA)
Skin Corr. 1B H314
Eye Dam. 1 H318
HHNOC 1

2.2. GHS Label elements, including precautionary statements

GHS-CA labelling

Hazard pictograms (GHS-CA) :

Signal word (GHS CA) : Danger

Hazard statements (GHS-CA) : H314 - Causes severe skin burns and eye damage.
Causes severe damage to the respriatory tract.

Precautionary statements (GHS-CA) : P260 - Do not breathe dust/fume/gas/mist/vapours/spray.
P264 - Wash hands thoroughly after handling.
P280 - Wear eye protection, protective gloves.
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water .
P363 - Wash contaminated clothing before reuse.
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 - Immediately call a POISON CENTER or doctor.
P405 - Store locked up.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS CA)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

1. Identification
2. Hazard(s) Identification
3. Composition/Ingredients
4. First-aid Measures
5. Firefighting Measures
6. Accidental Release Measures
7. Handling & Storage
8. Exposure/Personal Protection
9. Physical & Chemical Properties
10. Stability & Reactivity
11. Toxicological Information
12. Environmental Information
13. Disposal Considerations
14. Transportation Information
15. Regulatory Information
16. Other Information

The Three-Step Cleaning Process

1

Alkaline & Caustic Cleaners

Sodium/ Potassium Hydroxide
Sodium Carbonate / Metasilicate
Chlorinated

Remove organic matter; proteins, starches and carbohydrates

PBW, HD#2, CMC, LLC, Super CIP

2

Acid Rinse / Wash

Nitric Phosphoric Acid Blend

Remove and helps prevent beer stones / water scale, fats, oils

Acid #5, Phosphoric Acid, Citric Acid

3

Sanitizer / Final Rinse

PAA, Phosphoric Acid, Iodaphor, Chlorine Dioxide Isopropyl Alcohol

Reduce Microbiological and Bacteria to 99.9%

Star San, SaniClean, PAA Pro, Star-Xene

Caustic and Alkaline
Removing Organic Material

Standard Soil

Alkaline

Sodium Carbonate / Percarbonate / Metasilicate

Gentler on the stainless steel
Reduced risk of corrosion
Can be used on “soft” metal

Medium Soil

Non-Chlorinated Caustic

Sodium Hydroxide
Hydrogen Peroxide booster

More aggressive on the stainless steel
Can set beer stones
Can be used on “soft” metal
But NOT at Higher temps

Heavy Soil

*Use in Moderation

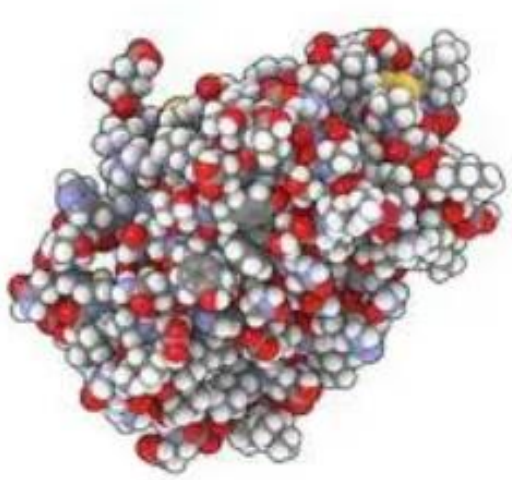
Chlorinated Caustic

Sodium Hypochlorite

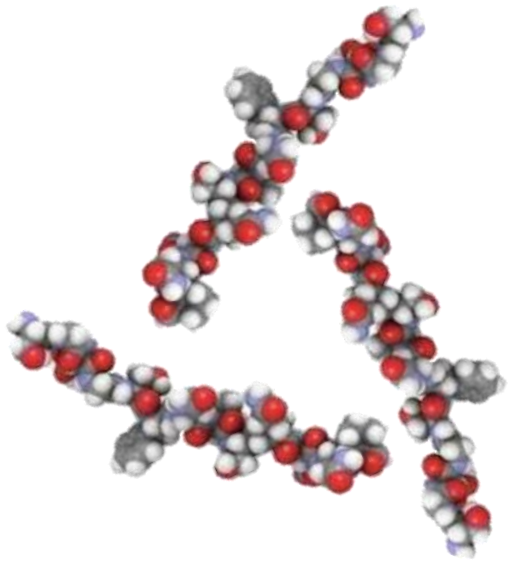
Very aggressive on the stainless steel
Need to complete rinse
Can cause pitting
Can’t be used on “soft” metal

Caustic and Alkaline

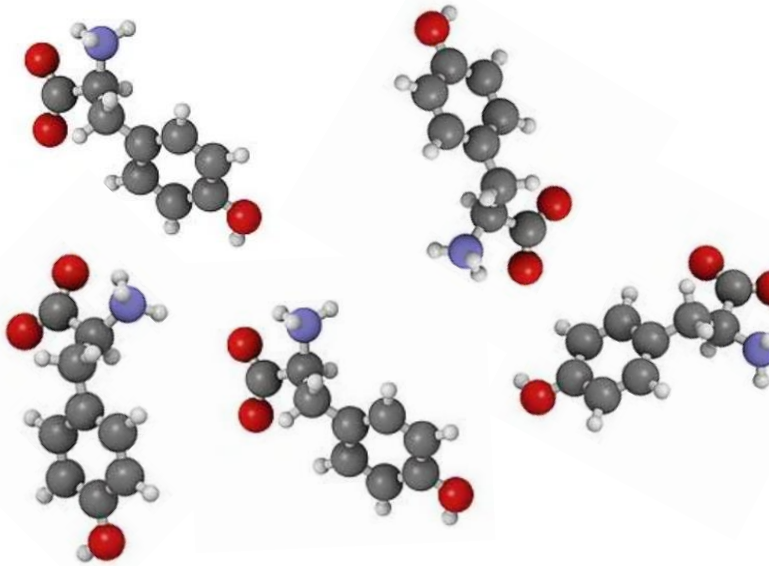
Protein



Peptide



Amino Acid



Hydrolytic: Breaks bonds protein by replacing with water molecule

Phosphoric Acid and Nitric Acid

Phosphoric Acid

Removes Mineral Deposits (Beer Stones)
Removes Rust
Neutralizes Residual Alkalis
Preps Surface for Passivation
*Can be Biocidal but in high concentrations

Nitric Acid

Removes Mineral Deposits (Beer Stones)
Biocidal Properties (Kills Bacteria & Fungi)
Dissolves Free Floating Iron Ions (Passivation)

Nitric Acid & Phosphoric Acid Blends

More Nitric than Phosphoric= used for Acid Rinse, Acid Wash and Passivation
Product: Acid #5

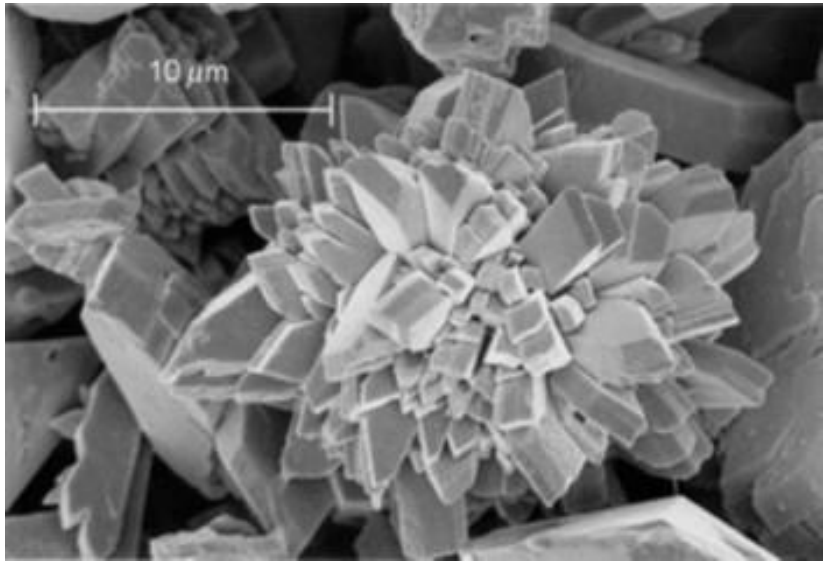
More Phosphoric than Nitric= Keg Cleaning, Hard to remove Scale/Beer Stones
*Some Contain Detergents
*Some can be used in CO_2 environments
Product: Acid #6

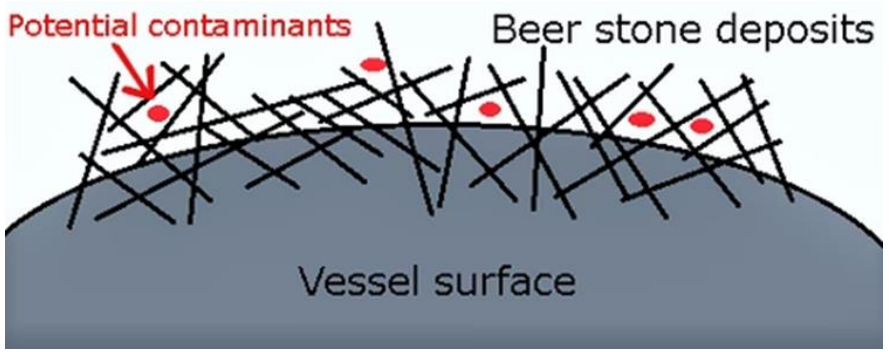
Beer Stones

What is a Beer Stone?: Calcium Oxalate

Calcium Oxalate: Crystallized compound that forms when calcium and magnesium carbonate binds with proteins

Why is this Bad?: Harbors bacteria that can cause off flavor, spoil beer, create a cloudy appearance

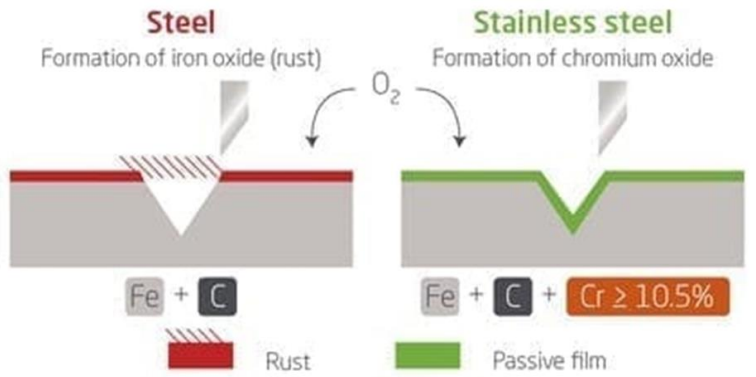




Bonus: Where else do you find Calcium Oxalate?

How to Prevent Scale & Beer Stone Build Up

Passivation: A chemical process that makes Stainless Steel and Copper surfaces less reactive and more resistant to corrosion by forming a protective layer

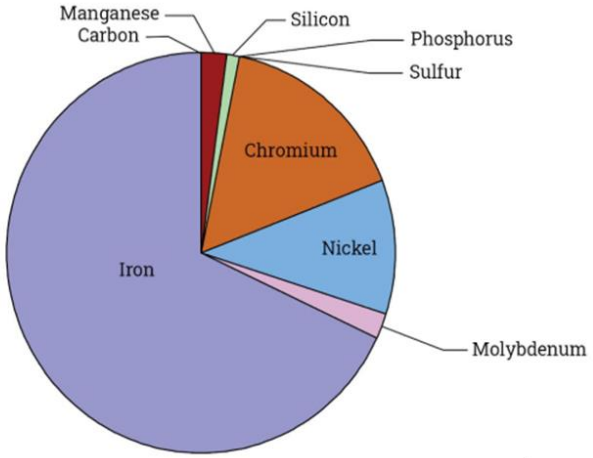


Stainless Steel Composition: 10.5% Chromium & 50-70% Iron

Iron and Oxygen form Iron Oxide= Rust

Chromium and Oxygen form Chromium Oxide= Passivation Layer

Nitric Acid Phosphoric Acid Blend



Phosphoric Acid: Preps the surface for by dissolving mineral deposits & removing containments

Nitric Acid: Removes the free-floating iron ions

Allows the Chromium and the oxygen to interact creating the protective layer

Methods of Passivation

Method One:

1. CIP with an Alkaline cleaner or Caustic Cleaner
2. Nitric Phosphoric Acid blend (needs more nitric than phosphoric)
    a) Do NOT rinse
    b) Allow to air dry for 24 hours

Method Two:

1. CIP with an Alkaline cleaner or Caustic Cleaner
2. Nitric Phosphoric Acid blend (needs more nitric than phosphoric)
    a) Drain but do NOT rinse
3. Follow with an Alkaline cleaner CIP
    a) MUST CONTAIN hydrogen peroxide or sodium percarbonate
4. Rinse and allow to air dry for 1-2 hours

*This method forms a **phosphate/silicate conversion coating** that protects the surface and creates a glassy-smooth finish

Methods of Passivation

Method Three:

1. CIP with an Alkaline cleaner or Caustic Cleaner
2. Citric Acid Bath
3. Drain and Rinse
4. Allow to air dry for 24 hours

Citric Acid

Can be used prior to passivating with Phos/Nitric to remove rust

Cleaning Best Practices

Scheduled Maintenance
Create a schedule for regularly cleaning and complete disassembly

Label
When taking apart equipment, label the parts. Take photos or video tape throughout the process if needed.

Dissemble Faucets / Clamps
Take apart and clean all faucets and clamps. Replace any damaged seals or gaskets

Use appropriate tools:
Avoid using abrasive scrubbers on stainless steel, as they can create scratches.
Use color-coded and labeled tools for different areas to prevent cross-contamination.

Questions?

Thank You

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